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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR  | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|-----------------------|---------------------|------------------|
| 10/649,381   | 08/27/2003  | Michael K. Aghajanian | M-104-D             | 4609             |
| 7590   | 07/28/2004  |                       | EXAMINER            |                  |
| Jeffrey R. Ramberg<br>M Cubed Technologies, Inc.<br>1 Tralee Industrial Park<br>Newark, DE 19711 |             |                       | JOHNSON, STEPHEN    |                  |
|  |             |                       | ART UNIT            | PAPER NUMBER     |
|  |             |                       | 3641                |                  |

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                |                   |   |
|------------------------------|--------------------------------|-------------------|---|
| <b>Office Action Summary</b> | Application No.                | Applicant(s)      | J |
|                              | 10/649,381                     | AGHAJANIAN ET AL. |   |
|                              | Examiner<br>Stephen M. Johnson | Art Unit<br>3641  |   |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 27 August 2003.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-27 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-27 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/15/2004</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

1. Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 7, applicant claims “a matrix comprising at least one metal comprising silicon”. Note that silicon is not a metal. In claim 1, line 12, the phrase “the filler material” lacks an antecedent. In claim 1, line 12, use of the term “(s)” makes the claim indefinite as to whether or not the item inside the parenthesis is or is not intended to be inclusive in the claim limitations. In claim 1, lines 10-14, applicant claims “said ceramic composite body is characterized by ... about 300 microns in size”. What portion of the ceramic composite body is being described. Is this description directed to the matrix (item (a)) of the at least one reinforcement material (item (b))? In claim 3, it is not understood as to what is meant by the phrase “said ceramic-rich composite body comprises no more than about 30 percent by volume of said metal”. This is confusing for two reasons. Firstly, applicant has no previously claimed material that is metal. Secondly, the matrix component that is comprised of silicon is a portion of the ceramic-rich composite body. Claim 4 is indefinite because it is not understood as to the reaction-bonded silicon carbide is intended to be a portion of the matrix component of the ceramic-rich composite body or a portion of the reinforcement material of the ceramic-rich composite body. Claim 5 is indefinite for like reasons. Claim 4 lacks a period. Claim 7 is indefinite because it fails to further limit the claim from which it depends. Applicant has already claimed “said backing layer comprises at least one fiber-reinforced plastic material” (see claim 1, line 4). In claims 10, 11, and 14, the phrase “said composite material” lacks an antecedent. In claim 14, the phrase “said silicon carbide” lacks an antecedent. Claims 10, 11, and 14 are indefinite because claims 10 and

11 claim the composite material as being a portion of the volume of the at least one reinforcement material whereas claim 14 claims the composite material as being a portion of the volume of the matrix. Which is it? In claim 17, the phrase “said composite” lacks an antecedent.

In claim 20, line 9, applicant claims “a molten metal comprising silicon”. Silicon is not a metal. In claim 20, line 10, use of the phrase “said molten metal” is indefinite for like reasons. In claim 20, lines 10-11, it is not understood as to how one can solidify a molten metal to form a ceramic-rich composite body. Please clarify. In claims 21 and 22, the phrase “said bodies” lacks an antecedent. In claims 25 and 26, the phrase “said porous mass” lacks an antecedent. In claim 27, the phrase “said hard filler material” lacks an antecedent.

2. With regard to the submitted IDS, DE 30 05 586 and WO 98/42634 have not been provided because copies of the documents could not be located in either U. S. application 10/649,381; 10/286,402; or 09/757,826.

3. Claims 1-27 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

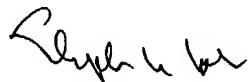
4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Snedeker et al., Lee et al., and Shibata disclose state of the art armor assemblies.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Johnson whose telephone number is 703-306-4158. The examiner can normally be reached on Tuesday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. Any inquiry of a general nature or relating to the status of this

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application or proceeding should be directed to the receptionist whose telephone number is 703-306-4177.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9326. The fax phone number for after final communications is (703) 872-9327.



STEPHEN M. JOHNSON  
PRIMARY EXAMINER

Stephen M. Johnson  
Primary Examiner  
Art Unit 3641

SMJ